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IN THE INTEREST OF THE HOROLOGICAL AND JEWELRY INDUSTRY

TECHNOLOGY DEPT.

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The AMERICAN HOROLOGIST

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THE AMERICAN HOROLOGIST

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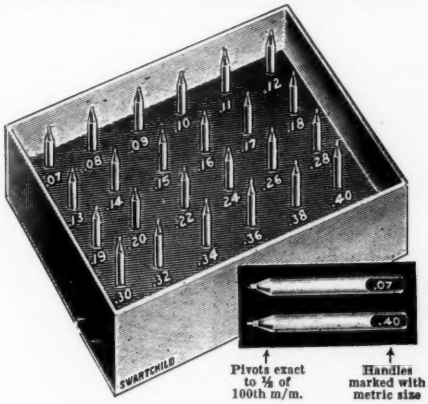

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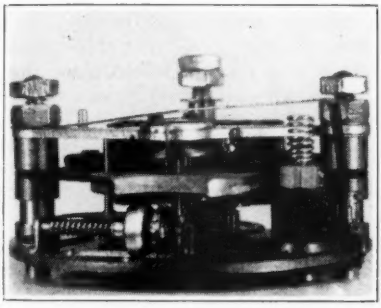
The 6-Volt Automobile Clock

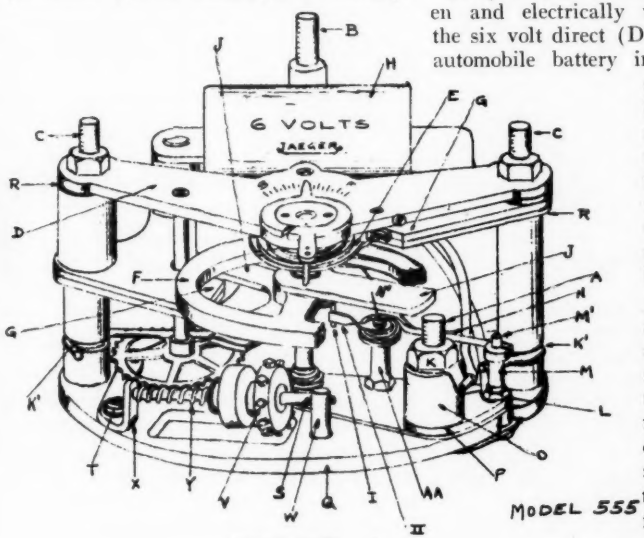
BY J. E. COLEMAN
Member National Technical Board.

THE newest comer to the watchmakers' bench is the six volt Automobile clock; at present these are being supplied to the automobile industry by three manufacturers: The Westclox Division General Instruments Corp., Lasalle, Ill., The Jaeger Watch Co., 304 East 45th., St. New York, N. Y. and The Geo. W. Borg, Corp. Chicago, Ill.



The lack of technical data upon this particular type of timekeeper in horological books, trade journals, etc., results in horologist having practically nothing in their libraries to turn to for aid, and, we believe this is the first effort of any trade publication to fill this want. In so doing, we sincerely hope to be of real assistance to many who have written in requesting it and all who may be interested. The watchmaker of today is often asked to service and repair these clocks, many times by an old customer whom he has served for a number of years; invariably the job is accepted with misgivings caused by lack of technical knowledge, small or no profit in the job and various others. It is these first two we hope to eliminate by an accurate description of the construction and principles of this type of clock along with a few suggestions relative to handling them.

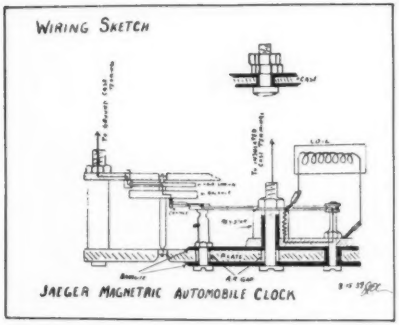
Since the Jaeger involves a wholly different principal from those usually encountered by the Horologist at the bench we shall take it up first:; The Jaeger is strictly an electric clock—not spring driven and electrically wound—it converts the six volt direct (D. C.) current of the automobile battery into electro-magnetic energy, driving the balance and the balance in turn drives the clock. One of the many questions you will be called upon to answer is, "Won't this clock run my battery down?" The Jaeger clock is rated at less than 1 milliampere (1/1,000 of an ampere) from this it will be seen that 2,000 of these clocks would consume less current than one horn. The following photos and sketches are intended



MODEL 555

FIGURE 1

to convey a working knowledge of the movement, Fig. 1 is a general sketch of one of the earliest models, No. 555, but, since all later models are basically the same principal, this sketch will serve for general reference. Fig. 2 shows a general sketch of the electric circuit, it will be seen that the grounded side conducts the current thru the case into the pillars which protrude thru the case, into the balance bridge, then to the hairspring and into



the balance staff and the balance wheel. A contact pin of platinum iridium is ready to make contact with the finger (of same material) closing the circuit on this side. At this break (contact) the current continues thru the finger and its spring to a post, then conducted to lower end of resistor. The other side of the circuit begins over the resistor screw and is conducted thru a nut into a terminal on the end of the starting lead going into the coil. From the coil thru a finish lead connecting with reversed polarity. When contact is made (see Fig. 1) the coil H. is energized, magnetizing poles G. which magnetism attracts the pallets J. on the balance wheel (in later models the balance itself is made of iron) towards the poles G. In so doing, tension on the hairspring E. is being developed as the magnetic pull displaces the balance wheel position to a point where the contact breaks. The momentum of the wheel itself carries the wheel still further. When the momentum is spent or meets with the hairspring tension the balance reverses towards its starting point, contact is again made as the contact pin I, passes finger II, but this time the magnetic pull attracts the opposite ends of the armature (Balance). This action is identical with the roller jewel action of the watch you handle every day, it takes place 300 times per minute and therefore your finished job can be rated upon your rate recorder.

To prevent the contacts from burning and pitting with long continued service a specially developed resistor O, is placed across the circuit from K. to P., this is insulated from the screw A, except at the nut K, so contact is confined to the coppered ends only. This is a delicate carbon resistor and is easily cracked if handled roughly. Its resistance should never be less than 1,200 or more than 2,300 ohms. Avoid substitutes. Care must also be used in handling the coils, in it are thousands of windings of very fine copper wire and shorts can occur from too much pressure or puncture of the wrapping.

To insure starting, a shunt is built in the movement, Fig. 6, between the back end of center post and setting device, this

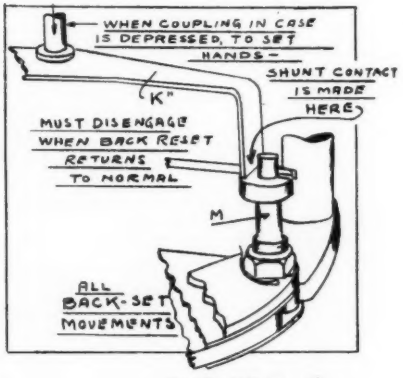

WHEN COUPLING IN CASE IS DEPRESSED, TO SET HANDS —
SHUNT CONTACT IS MADE HERE
"K"
MUST DISENGAGE WHEN BACK RESET RETURNS TO NORMAL
M
ALL BACK-SET MOVEMENTS

FIGURE 6

is a bronze flat spring K. which conducts the current around the contact directly into the coil lining up the balance in the magnetic path. Upon release the hairspring returns the balance towards its former position with force enough to make a snappy contact that starts the clock on

its way. For this reason setting the hands after the clock has been dead or stopped, automatically starts the clock. Since current consumption in this position is a little greater than during regular operation, it should not be left upon the starter, longer than necessary to set the hands.

Both the pin on the balance wheel and the flipping finger are made of a special platinum iridium alloy and no attempt should ever be made to use substitutes. These should NEVER be OILED. The relation of the contact finger and pin is very important. When the balance wheel

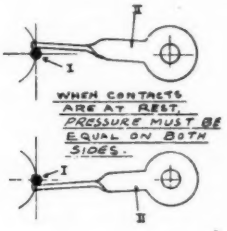


FIGURE 7

is at rest, the finger II, has a slight pressure against the contact pin I, on one side. This pressure should be equal on both sides of the contact pin, Fig. 7. To equalize this pressure the hairspring collet may be moved on the balance staff just as you put an ordinary watch in beat. In its rest position the contact finger must point

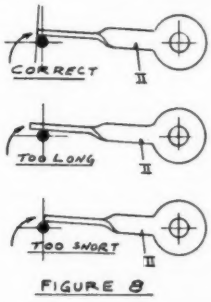


FIGURE 8

directly to the center of the balance staff. This adjustment is possible by moving the collet on the tail spring N. Fig. 1. The end of the contact finger should be flush with the inside of the pin as shown in Fig. 8. The contact pin I, must be absolutely straight and upright, and tightly staked in or it will give erratic performance. The finger pin II, must have a snappy return from both directions and its hinge pin straight. Be certain the hinge pin N, is pushed properly down to avoid excessive end play. It is necessary that the contact spring N, be true spirally, so coils do not rub each other and cause a buzz or singing sound under vibration of the flipping finger. OIL must be used SPARINGLY, if at all, on the hinge pin to prevent oil creeping to the contact points.

The balance jewels are practically identical with those you are accustomed to servicing therefore no instructions need be given here, in the early models end shake in the balance was controlled by altering the height of the balance bridge with washers placed under it. In the later models the jewel mountings are in screws and end shake is had in the same manner as many jeweled alarm clocks.

The escapement of this clock differs greatly from anything usually found in timekeepers and should be studied closely, see Figs. 1 and 12. The levee cam V. on the balance staff just below the balance wheel has two oppositely inclined planes that engage the diamond shaped teeth of the escape wheel. There are two relative positions of these important parts that must be checked from two directions, Fig. 12. In the view from the top A, can be seen how the escape wheel should line up with the balance staff pivot center when the balance is at rest. B, is a front view of the same position. The escape teeth should engage the levee discs, as deep as possible, preferably ¾ the depth (never less than ½). While the bracket X, and the post W, Fig. I should place this position right it may be found that some inexperienced person has bent one or the other so that they crowd and jam, or, are too far apart and do not mesh properly. This latter condition will cause the levee cams to strike the side of the escape teeth. This relation of the levee and the escape wheel could be considered the heart of the

instrument and therefore is very important. Should escape wheel teeth become damaged as a result of deformed levee cams or other causes, wheel should be replaced with a new one for clock will not operate with damaged teeth even after levees are repaired. Good heavy tweezers are used to repair levee, for manipulation and proper adjustment see Fig 13. The space at A, Figs. 12 and 13 can become bent out of parallel, so that the teeth of the escape wheel stick between or outside this track, any attempt to correct this condition must not leave a kink in the levee discs, or loosen them in their seats. The vertical space or levee gap between the upturn end of cams is very important and is but .012 or less than 1-64 of an inch.

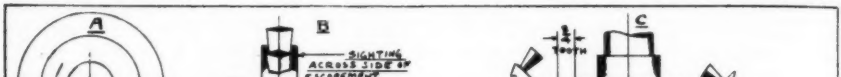
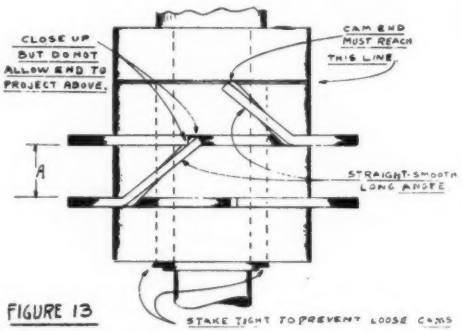


FIGURE 12

The hairspring in this clock is very much like the usual run of such springs you are accustomed to handling—must be true in both the flat and round—it has been designed especially for this clock of a material that compensates for the temperature errors, so do not replace with commercial springs.

The fly wheel, Fig. 18, is a mass of weight intended to function as inertia to hold the escapement steady, and is mounted beside the escape wheel. It must be free and allowed to float at will as the clock runs. Do NOT oil it. The highly polished wire worm Y, is not an ordinary steel spring, but a carefully pitched, one-tooth spiral made to mesh with the special tooth of center wheel Z. The bracket X is made to support this work properly, and is adjustable.


CLOSE UP BUT DO NOT ALLOW END TO PROJECT ABOVE.
CAM END MUST REACH THIS LINE
A
STRAIGHT-SMOOTH LONG ANGLE
STAKE TIGHT TO PREVENT LOOSE CAMS
FIGURE 13

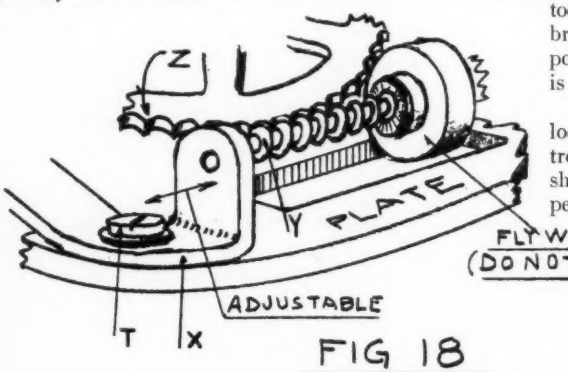


FIG 18

One of the first things to look for in a clock giving trouble is short circuits, a shorted movement can happen. Discoloration of parts, indicating heat, burned hairsprings or burned contact springs, or the contact pin on balance wheel, are clues that sug-

gest a short circuit. Check the screw A, Figs. 1 and 2, its only contact must be with the nut K. Inside the resistor O is a fiber tube that should extend through the upper plate insulating the screw from it. The two bakelite strips on each side of the main plate insulate it from the main plate. A cracked or damaged resistor will cause the contact points to burn quickly and should be replaced. The insulation construction is the same for all models of movements—the contact finger post AA must be insulated from the main plate, this is by air gap. If the holes in the bakelite strips do not coincide with the larger hole in the main plate, this post could touch the plate or foreign metal particles get into the air gap and cause a short.

The tail screw M, has a "spaghetti" tube insulator around the portion that protrudes thru the plate, the last two are not really shorts, but, shunts. These set up the same condition as described in starting, a real short will heat or flash, a safe rule is to trace the current with a meter like a continuity meter.

Noisy operation may be overbanking of the balance by improperly located levee gap, causing a one-sided pound against the escapement, or can be caused by friction due to improperly assembled or adjusted parts, no end shake, etc. If your clock fails to start the trouble may be with the contact spring mentioned as the starter, it may not contact on the tail screw collet of the contact spring when the hand set crown is pushed down. There may be a short circuit, or contacts may not meet equally on both sides under pressure. The reset coupling may be stuck and failing to return to its normal out position. Terminals may be loose, or connections poor. Contacts may be oxidized from operating with a defective resistor. The flexible reset used on some models may not be working properly.

When in doubt or you have a clock that you can't seem to get in perfect order REMEMBER that the company has special factory representatives in most large cities—one might be near you—or, you can always send the clock direct to the manufacturer. Any six volt storage battery is sufficient to time the clock for a period long enough to regulate it; if you expect to handle much of this type of work we suggest that you equip yourself with a good battery and a charger to keep it up, the Jaeger clock is so designed that it will operate equally correct at voltage variations of about 50% more or less than the six volts it is built to operate upon. When regulating you will find that one division of the regulator scale may vary the clock as much as two or three minutes in 24 hours. Your repair job should be timed in your shop to within thirty seconds per day before releasing it to the owner.

We have purposely omitted comments upon cleaning, oiling, manipulating the hairspring, etc., for the reason that the principles involved are already familiar to the horologist at the bench, we sincerely hope that these few pointers together with the sketches will enable you to, first, handle these jobs as they should be; second, give your customer a satisfactory job, thereby preserving his confidence in you as a repairman and the product he has bought. Last but not least, enable you to turn out a satisfactory repair job with a dispatch and promptness that will bear some profit.

(More articles on the 6-volt automobile clock, will be presented in later issues.—Editor.)

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AERONAUTICAL INSTRUMENT SERVICE

Aircraft Instruments

EDITOR'S NOTE—Aeronautical Instrument Service is a subject untouched by publications in the Horological field, or in fact by any publication. In September, 1938, THE AMERICAN HOROLOGIST inaugurated such an educational service via prepared illustrated lectures to be used by U. H. A. A. organizations for the purpose of broadening our members' scope of knowledge in this field, which offered additional remuneration to those far-sighted enough to avail themselves of such knowledge.

Chronometric Tachometer

ARTICLE No. 2

Continued from October Issue

Detailed Operation of Type A Chronometric Tachometer.—This instrument appears in Figures 3, 4, and 5. Figure 5 shows the systems which perform the same functions as the corresponding systems in the type C. In the type A, however, the counting member is a toothed rack instead of a gear; and the driving and locking devices are not brought into connection with the counter, but the counter with them by a movement at right angles to its counting motion.

The maximum possible lag in this tachometer, between a change in revolution per minute and its indication on the dial, is 1 second.

The drive system (fig. 5 (a)) consists of the main drive gear, *A*, which is fastened to the arbor *S* and meshed with a pinion on the drive spindle of the instrument; the gear *N*, also attached to *S;* and the gears *L, M, O, and P.* The function of the drive system is to turn the spindle *Z* (fig. 5 (b) and (c)), to which *P* is fixed and by which the counting and escapement systems are driven. *Z* must revolve in the same direction independently of the direction of drive. This is accomplished by means of a reversing mechanism formed by the gears, *N, L, M,* and *O. L.* and *M.* are mounted on a rocker *T* idling on *S,* and are in permanent mesh with *N. O is* pivoted on a stud fastened to the frame, and is in mesh with *P.* In accordance with whether *A* rotates clockwise or counterclockwise, the friction between *S* and *T* (which is increased by the slip spring *D*) rotates *T* slightly one way or the other and causes *L* to mesh with *P, M,* and *O* idling; or *M* to mesh with *O, I.* idling. The direction of rotation of *P* is the same in either case. The screw head *E* playing in the slot *G* serves as a stop for *T.*

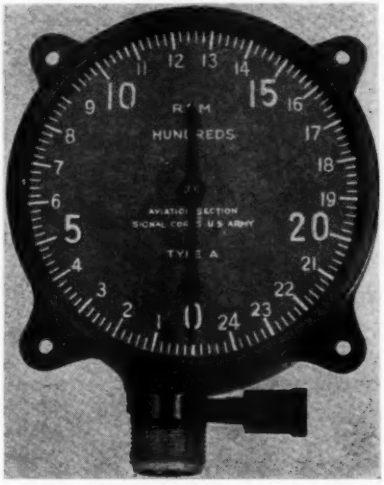

Figure 3—Front View of Type A Chronometric Tachometer.

The escapement system (fig. 5 (b)) is composed of the toothed barrel *B,* the shaft *J,* and the double-roller escapement *K. J* has fastened to it at one end the gear *R* meshing with *B;* at the other end the escape wheel *U.*

The motive power for the system is applied, as in the type C, by means of a slip

spring called the mainspring, fastened to *Z* and coiled inside of *B*. It is transmitted through *R* and *J*, to *K* and is released by *K*, allowing the system, including *R* and *J*, to move suddenly at regular intervals. The time for one swing of the balance wheel of *K* is one-fourth second. Twelve swings are required for a complete revolution of *U*. *J* thus makes a complete revolution in three seconds.

The escapement is very heavy. To facilitate starting, the escape wheel is fitted with an auxiliary device which stops it shortly after the shaft stops rotating; thus the mainspring is prevented from unwinding completely, and stops off center with

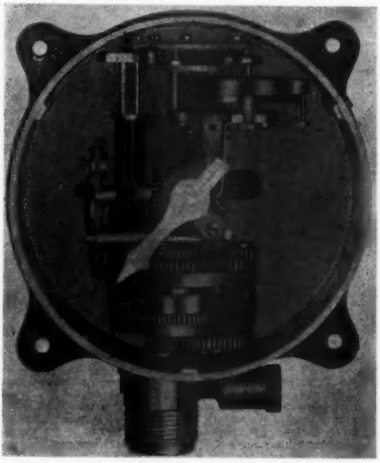

Figure 4—Mechanism of Type A Chronometric Tachometer.

tension in the escapement spring. The arrangement is such that when the pointer returns to its zero position a pin *a* falls automatically, engages a stub *b* on the rim of the balance wheel, and stops the escapement.

The counting system (fig 5 (c)) is made up of the fine-toothed pinion *F*, connected with *Z* through the gear train *Y-X-V-Q*, the toothed racks *C*, and the cylindrical pawl *f*.

The racks, in the form of three identical cylindrical arcs of 120° each, envelop the shaft *J*, along which they are free to slide in grooves. Their zero position is against *R;* they tend to assume this position by the action of the helical control springs *h*, lying in grooves and fastened, respectively, to *J* and to the racks. *F* and *f* are held in contact with the racks by the springs *k* and *m*, which are attached to the rockers *q* and *g* in which they are mounted.

As *J* rotates clockwise, viewed from the escapement end, each rack is, first carried by *F's* rotation along *J* from *R* toward *U* against the force of the rack's control spring; second, caught and held by f in the position in which it is left by *F;* third, disengaged from *f* and drawn back to the zero position by its control spring. Since the width of the racks and the distance between the points of contact of *F* and *f* are each 120°, the above operations follow each other without interruption or overlapping; have each one second (a third of the period of revolution of *J*) allotted to them; and are performed by the racks with a successive phase difference of one second. Consequently, one of the three racks is engaged in each of the three

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Franklin, Pennsylvania

operations at every instant. Unlike the type C, this tachometer is never idle. F, being geared directly to Z and, hence, to the main drive A, rotates at a speed proportional to that of the drive. The period of mesh of the racks with F is constant and equal to one second. Therefore, the distances traveled by the racks along J are proportional to the rate of revolution during successive seconds, so long as the period of escapement is constant. Thus, the rack which is held by f during each second is at a distance from its zero position proportional to the rate during the preceding second.

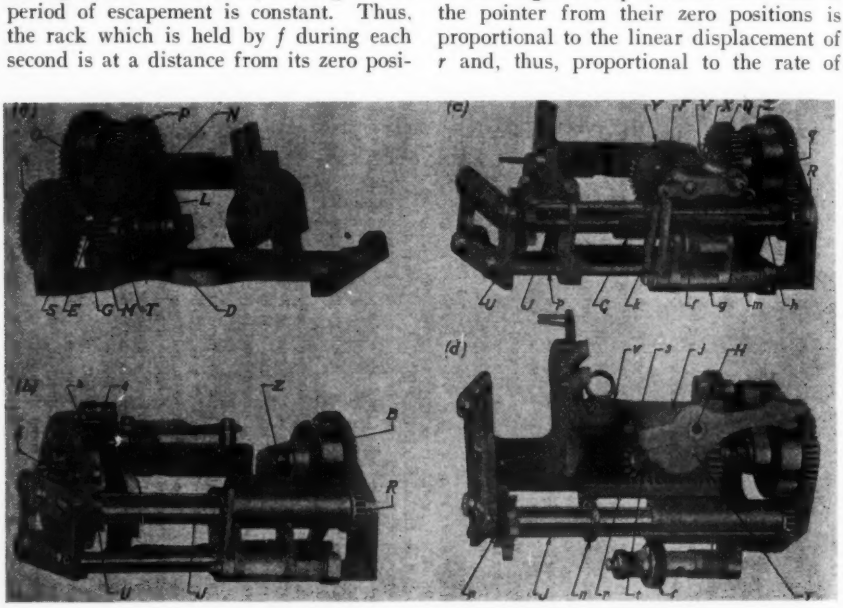

Figure 5—Mechanism of Type A Chronometric Tachometer in Detail.
(a)—Drive System. (b)—Escapement System. (c)—Counting System. (d)—Indicating System.

The indicating system (fig. 5 (d)) is formed by a collar n, which encircles J loosely; a toothed rack r, to which n is attached, sliding on a rod p (see fig 5 (c) also); and a gear s fixed to the pointer staff and meshing with r.

The racks, as they travel along J, engage n and thus move r, s, H, and the pointer. A control spring t opposes the motion, taking up the backlash between r and s and keeping n in contact with the racks. In its zero position, n rests against all three racks in their zero positions. It also rests during each second on that one of the racks which is held by f at its maximum height attained during its preceding period of contact with F. The displacement of n and r from their zero positions is, therefore, the same as that of the rack and, hence, proportional to the speed during the preceding second. However, r and s constitute a simple rack and pinion; so the angular displacement of s and of the pointer from their zero positions is proportional to the linear displacement of r and, thus, proportional to the rate of revolution. This instrument, therefore, has a uniform scale. It does not, however, show the rate at each instant, but indicates throughout a given second the average rate during the preceding second. Changes in reading take place at the ends of the second periods, because it is then that n shifts from one rack to another. If an alteration in speed occurs, the succeeding rack does one of two things. If the speed decreases, it stops short of the preceding rack, which is in mesh with f and against which n is resting; thus when the preceding rack is released, n is drawn backward by t into cantact with the succeeding rack.

If the speed increases, the rack engages *n* a little before the close of the second, lifts it off the end of the preceding rack, and pushes it forward suddenly, holding it on coming to rest.

In both cases the change in reading is abrupt and occurs nearly at the end of the second period. If the rate is constant, each succeeding rack stops just abreast of the preceding one, and no change in the position of *n* or the pointer occurs. A loose pin-and-hole connection *y* (fig. 5 (d)) inserted between *H* and the pointer serves to remove any fluctuations of the pointer caused by imperfect meshing of the racks with *F*. However, this is done at the expense of accuracy and sensitivitv. The spring *v*, bearing in the threaded rim of the disk *j*, acts as a damper for this arrangement and, by the dropping of its curved end into a slot in the disk, as a zero lock for the pointer. The threads prevent this action at full scale deflection.

The Horological Guild of Philadelphia

The regular monthly business meeting of the Horological Guild of Philadelphia was held at the Franklin Institute on Tuesday evening, October 4, 1939. After the regular discussion of business, Mr. L. W. Spinner continued his demonstration on the use of the Jacot tool.

As in September there were two classes of instruction held on the second and third Tuesday evenings of the month. A discussion and study of escapements was conducted by George Raitzel on October 10th and a lecture and study group on "Practical and Theoretical Gearing" was conducted by H. C. Holt on October 17th. Both classes were well attended.

It is planned to continue these extra session classes throughout the year and covering all phases of watchmaking.

RALPH SAUNDERS, *Corr. Sec.*

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As illustrated, the assortments are assembled in a wood frame, velvet lined, leatherette cabinet 11 inches long and 6¾ inches wide. A descriptive chart giving names, sizes, and Newall Series Number is included.

No. 626 Contains 1 each of 72 numbers **$6.00**

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The Mainspring

By Sigfrid Strommer,
Vice President, Watch Motor Mainspring Co., Inc.

IN EVERY organization for business or pleasure, or for social uplift, there is always one man whose personality, initiative and driving force gives it motion and direction. Such a leader is often referred to as the Mainspring of that organization. That is a sincere compliment and proves that the public appreciates the importance of mainsprings.

To horologists the importance of good mainsprings cannot be exaggerated. They need efficient power for watches and are always looking for the best mainsprings obtainable. The extremely high standards of timekeeping established for our modern railroad watches can be maintained only with the use of high grade mainsprings. No matter how perfectly a watch is adjusted and regulated its rate will change if the mainspring sets.

All of us are not railroad watch inspectors, but our customers are just as important to us. The average man or woman is also more liable to be impressed and to show appreciation if their watches are made to keep perfect time. If you put back that old set mainspring their watches cannot do that and you have no right to call yourself a horologist.

If you see that a mainspring is set, why not decide immediately to fit a new one. That is good economy. A good mainspring costs so little and you may be able to complete the repairs on that watch in less time. If you assemble the watch with the set mainspring you may find it necessary to take it apart again either then, or a short time after to fit a new one.

It is not enough, however, to put in a new mainspring, it is important that it be a good mainspring. When you take a watch apart and lift off the barrel cover

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LITTLETON

- Smallest and Thinnest Ladies' round wrist watch ever made in America.

All Ways in Fashion

Waltham Watch Company
Waltham, Massachusetts

take a little time to study conditions inside. The mainspring and barrel assembly is the motor in that watch and you cannot hope to make it a perfect timekeeper unless the watch motor is in condition to deliver efficient power. Push the mainspring down to the bottom of the barrel to check if it is the right width and has enough clearance. Examine the inside of the barrel cover to see if the mainspring has cut it; if so find the reason why. If the mainspring is narrower than seems necessary for proper clearance you can fit a wider, thinner and longer mainspring and that is always an advantage.

Often, on even a casual examination, the mainspring in a watch taken apart for repairs is obviously wrong. Either it fills too much of the space in the barrel, or it seems too thick and short and does not form a sufficient number of coils. Snap on the barrel cover again, put the arbor in a chuck pin vise, wind up the mainspring in full and count the number of turns. A properly fitted mainspring should give you 5½ to 7 turns in most watches. Only 3½ turns are utilized for 24 hours run. If the mainspring takes 7 turns winding it delivers almost even power during the first 24 hours run. If it takes only 4½ turns you are sure to find upon taking it out of the barrel that it is very set because it is soft or made of poor quality steel. A high grade mainspring for that watch can be one or two numbers thinner and consequently one or two inches longer.

The question then arises: How can I test the quality of mainsprings? To make complete tests requires expensive equipment which only manufacturers can afford, but there is a very simple test that every horologist can make. Buy a few mainsprings of several different makes for which high quality is claimed. Let them be of such sizes as you use frequently, but be sure that the mainsprings of all makes you compare are the same size, otherwise, the test proves nothing. All mainsprings look good as they come out of the envelope, but you know that they cannot do any work until they have been wound up. The important question is how they look after winding. It would of course be useless to exchange an old set mainspring with a new one that will set just as much on first winding.

Take one mainspring from each lot, lay them on paper and draw a pencil sketch of how each one looks as it comes out of the envelope. Then wind them up in your mainspring winder. Do not just wind them into the holder—that means nothing—but take hold of the end and wind them up tight over the arbor. When you push them out of the winder do not let them fly, grip the coiled spring and release it very slowly until completely relaxed, then lay it back on the sketch of how it looked before winding. When you have wound up all mainsprings of each size compare results. It is really astonishing what a change in appearance one full winding produces in some mainsprings. You will find that the comparative power of mainsprings and their term of effective service is in close relation of how much they expand after winding. Your own standards of quality can be developed only by making tests and comparing results. The money you spend is wisely invested and will pay big returns.

It is not necessarily true that the mainsprings tested would set as much in a watch as they set in the winder. That depends on whether your winding arbor is smaller or larger than the barrel arbor. As little as ¼ millimeter difference in diameter has a big effect. Still, if all springs tested were wound over the same arbor the test is fair.

Good mainsprings are the same as insurance for the skillful job you have done. They make boosters for your shop. Make sure you are using good mainsprings.

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IMPORTER
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For Your Economy and Eyesight

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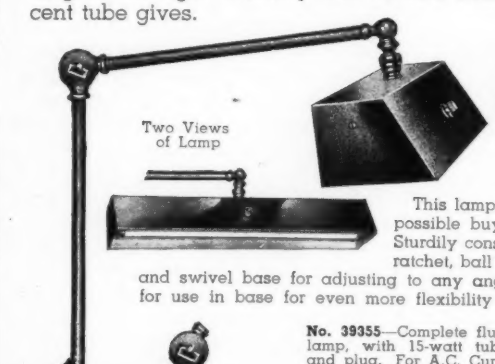
DESIGNED TO GIVE DAY LIGHT TO THE WATCH MAKER and JEWELE

Uses Only 15 Watts of Electricity --- yet gives the Light Intensity of a 75 WATT BULB

Definitely the most revolutionary achievements, for the man at the bench, that has come out of our shops. Using one of these lamps is assurance there will be no more sharp blinding reflections caused by light shining on highly polished surfaces, no more intense heat from large lamp bulbs that were normally used to give the light intensity this 15-watt fluorescent tube gives.

This 18" 15-watt fluorescent tube gives as much light as a regular 75 watt bulb thereby cutting your cost of electricity eighty percent. It contains no filament gives off a rich glowing light the entire length of its surface, illuminating the complete area of your bench, bringing out the minutest details with startling clearness.



Two Views of Lamp

Extra Ratchet Grip

LITTLE GIANT Fluorescent BENCH LAMP

This lamp was made to give the best possible buy in the lower price range. Sturdily constructed, it has a friction grip ratchet, ball joint connecting with shade and swivel base for adjusting to any angle. An extra ratchet grip for use in base for even more flexibility is offered with this lamp.

No. 39355—Complete fluorescent lamp, with 15-watt tube, cord and plug. For A.C. Current.....

No. 39357—Complete fluorescent lamp, with 15-watt tube, cord and plug. For D.C. Current.....

$8.50

No. 39356—Extra ratchet grip.....**50c**

Check These

- ✓ Occupies less bench
- ✓ Casts no black
- ✓ Easy on the eye can be easily
- ✓ Radiates no he
- ✓ Easily adjusted centred work
- ✓ Beautifully finished contains **Chrom**
- ✓ Shade connected joint making it focus.
- ✓ Both lamps using as a sec

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light the entire
inating the com-
ch, ranging out
n starting clear-

Concentrated Glow Without Glare

Check These Features:

- Occupies less than 3" of space on your bench
- Casts no black shadows.
- Easy on the eyes—causes no eye-strain—can be easily looked at.
- Radiates no heat.
- Easily adjusted if desired for more concentrated work.
- Beautifully finished. Inside of shade contains **Chromium Finished Reflector.**
- Shade connected to standard with a ball joint making it easy to tilt to any desired focus.
- Both lamps removable from base for using as a searchlight.

PEERLESS Fluorescent BENCH LAMP

This lamp has every convenience and will always be a pleasure to use. Two slide adjustments and a ball joint on the standard makes it possible to use in almost every conceivable position. Beautifully finished in smooth statuary bronze finish.

No. 39375—Complete fluorescent lamp, with 15-watt tube, cord and plug. For A.C. Current.....

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Organization Activity

Associations and Guilds are realizing the fruits of organized fraternalism according to reports flooding the National office. New ideas and old are working magic and bringing results.

Most organizations declared summer adjournment, but held outings, etc., so as to become better acquainted and are now returning to the more serious business of their profession.

Worcester Guild No. 2

Conducted an outing and Beauty contest August 13th at Edgemore Lodge, Shrewsbury, Mass., with over 300 watchmakers, jewelers and families in attendance from Massachusetts, Rhode Island, New Hampshire, New York, and Connecticut.

The day was filled with pleasure, winners in field events, swimming, etc., were numerous.

Winner of the first Horological Beauty Contest was Miss June A. Perreault, of Shrewsbury.

Miss June A. Perreault, First Horological Beauty Contest Winner.

Worcester Guild followed this event with a dinner smoker in September, at Aurora Hotel, which was well attended, and plans made to act as host to the State Convention in October.

Horological Assn. of Mass.

Held their annual state convention, October 8th, at Worcester, Massachusetts, in the Aurora Hotel.

New State Officers of Massachusetts—Seated, Left to Right: Col. W. H. Bright of Waltham, Secretary; H. L. Desjardins of Beverly, President. Standing: C. N. Barton, Vice President; J. E. Bogage, National Trustee; Paul C. Tasse, Treasurer, All of Worcester.

Plans for the coming year were carefully outlined, their program will bring about a greater state association.

Officers elected and installed were: Henry Desjardin, of Beverly, President; Clifford H. Barton, of Worcester, Vice-President; Col. Wm. H. Bright, of Waltham, Secretary; Paul C. Tassee, of Worcester, Treasurer; J. Edward Bogage, of Worcester, National Trustee.

Members of the Executive Committee for three years are: Earl Raymond, of Brockton, and Joseph R. Richard, of Salem.

South Shore Guild No. 4

CARL M. RAYMOND, Secretary

The So. Shore Guild plans are moving forward in conformity with the balance of State. The Guild Secretary, Mr. Raymond, declares their Guild will not be overshadowed by any other.

—there during the second meeting of this newly established trade extension class.

The interest shown by those in attendance was truly gratifying, the class was well attended and was a decided increase over first class. The men are eager to take part and secure greater knowledge in their profession.

The State has surely gone to great lengths to aid our craft and set an example to other States. Even though states do not have Registration it is felt that many states will be happy to cooperate with the

Officers of North Shore Guild No. 3, Horological Association of Massachusetts.

Trade Extension Course For Horologist

Wisconsin State recognizes the need in our craft for further training and have established the first Trade extension course in the U. S. (for Registered Watchmakers only) knowing the public will benefit by helping our craft.

During the National Secretaries visit to Wisconsin last month he arranged to be

Horological Associations in establishing a similar course in your State, we do not recommend a general class of training but rather an extension course for those now engaged.

The National Association, through its facilities, has been aiding various State schools and colleges along this educational line and all are eager to properly form and establish uniform curriculums.

FIT A NEW
SANDSTEEL CROSSCURVED MAINSPRING
IN THAT WATCH!

The Improvement in Motion and Timekeeping Will Please You—and Please Your Customer.

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A Sure Source of Supply

Horological Association of Iowa

Held its first State Convention October 1st in Fort Dodge, with a splendid attendance from every section of Iowa, 27 cities and four states represented, with a registration of approximately 100.

E. L. BERNER, State President.

H. C. KIRKBERG, State Nat'l Trustee.

Iowa stood in fourth place on the National Honor Roll for State membership at last National Convention. They are definitely not satisfied and are making a strong bid for first place as increased membership will indicate.

The day was filled with activity and ended with revelry in conjunction with the State Jewelers Association, who are also holding their State Convention, October 1st and 2nd. Officers elected by Horological Association: E. L. Berner, Fort Dodge. Vice Presidents, C. F. Arnold, Marshalltown; H. S. Wohlenderg, Hawarden; L. C. Tallman, Ames, and O. Bookin, Ottumwa.

Seretary, P. Burgland, Sioux City; Treasurer, C. M. Hewitt, Sioux City; Directors, Harold C. Farger, Des Moines; G. T. Hogg, Oskaloosa; Max Cramer, Ottumwa; L. K. Burket, Akron; G. F. Rathbun, Council Bluffs. National Trustee, H. C. Kirkberg, Fort Dodge. Nebraska Horological Association officers all attended Iowa's First Convention.

Iowa State Jewelers Convention

The Jewelers held their Thirty-third Annual Convention at Fort Dodge, October 1st and 2nd. Sunday was devoted to annual golf tournament at Country Club, evening was devoted to revelry supplied by The Hawkeye Boosters (traveling men). Monday regular order of business, speakers, H. W. Von Unruch, Re-

Watchmakers at Luncheon During State Convention, October 1st.

Jewelers and Watchmakers in Joint Banquet, Ft. Dodge.

gional Vice President, N. R. J. A. Cincinnati; Paul Juergensen, Chicago; B. F. Spry, Des Moines; Orville R. Hagans, U. H. A. A. Colorado. The Association pledged support to Horological Association and its work. The event ended in a splendid banquet and dance.

Horological Association of Missouri

The State Association is moving forward with great momentum since St. Louis Guild was formed and the membership increase threatens all other States. Sixty days ago the State had only 17 active members; last month the membership numbered 86; as we go to press it numbers 111. Looks like Missouri also aspires to top place in National Honor Roll. Oklahoma, Kansas, and all others better start shifting gears.

JOSEPH E. OBMANN, State Secretary.

Springfield Guild

The Springfield Watchmakers Guild held their regular meeting September 18 at the Heaume Hotel, with C. F. Fosnaugh and Allen Whitmore as guests of the evening.

After dinner, Mr. Snodgrass read a letter from State president, Mr. Heimberger, inviting Springfield members and their wives to a banquet to be held in Columbus, in honor of Wm. Samelius. We sent in ten reservations from our guild.

Mr. Fosnaugh then projected the A. H. Films on "Nickel." We were very much impressed by the complicated method in extracting the common and useful metal "Nickel."

October 2nd, our meeting was dinner and business session combined. October 16th, Mr. Armstrong displayed and discussed old watches. Plans for winter sessions discussed.

Come on and meet the boys!

GEO. F. WISDEN, *Publicity.*

YOUR WORKING EFFICIENCY DEPENDS ON A LITTLE PIECE OF GLASS LIKE THIS . . . . .

This is the lens from a watchmaker's loupe. Just a bit of glass, but through it you must look the largest part of every working day. On the optical qualities of this lens depend the adequacy of your vision and your efficiency in work. If the glass is not of uniform structure, crystal-clear, if the surfacing is not accurate down to a fraction of a wave-length, the loupe will impose an unnecessary strain on your eye.

•

Bausch & Lomb loupes (75c to $3.00) cost but little more than the cheapest. And their fine precision means years of tireless, efficient service. Your own jobber can supply you. Or write for catalog of loupes, reading glasses and hand magnifiers.

BAUSCH & LOMB

319 BAUSCH ST. • ROCHESTER, N. Y.

Detroit Horological Society

The Detroit Horological Society held its 25th meeting in the Hotel Webster Hall, October 9th. After the minutes and financial reports were accepted, discussions on following subjects took place: Benefits of National Plaque as Advertising Medium, Membership Transfers, Ways and Means of Increasing Membership, Increasing Meeting Interest. President appointed Mr. Schultz as chairman of the entertainment committee, acting with Messrs. Zorno, McBride, Ehrman and Kamerer.

Two new members were added to assist Mr. Guninger, chairman of Technical Committee. His new aids are Mr. Meyer and Mr. Gehringer; with the aid of excellent drawings, then gave an interesting disclosure on the Lever Escapement. Meeting adjourned 10 p. m.

George C. Trevarthen, Secy.

Western Indiana Watchmakers Guild

Western Indiana Watchmakers Guild held their annual picnic in Terre Haute, Indiana, at the beautiful Deming Park picnic grounds on September 10th. After a full day of enjoying a soft ball game between the Fats and Slats, balloon races and rolling pin throwing contests by the wives and sweethearts of the Watchmakers and Jewelers, and various other contests, the tired but pleased participants wended their ways homeward to the various cities and towns in Eastern Illinois and Indiana.

The guests of honor were: Herman Lodde, and wife, of Indianapolis; A. S. Rowe, of Indianapolis; R. B. Medlock, of Clinton; and J. L. Hunnicut, of Rockville; L. R. Douglas, Indianapolis; and Terre Haute's Grand Old Man of the Watchmakers Profession, Henry F. Schmidt, and his wife. Mr. Schmidt is about 88 years of age and still active in his business; has been at the watchmakers bench for about 74 years and has been in his own business for about 63 years. It is believed that he has been as the trade longer than any other living Watchmaker in the country. He and his wife will soon celebrate their 62nd wedding anniversary.

The spirit of cooperation developed thru this organization is proving a decided benefit to all active and participating members.

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Write for free book "Your Future and Our School"
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Jurgensen Recoiling Mainsprings for Swiss Watches
Friction Jeweling Tools — High Grade Friction Jewels
Genuine Factory Watch Material
English Watch Straps — American Watch Straps
Further Details Given Upon Request
BUHL, PEER & KEEFE
41-43 MAIDEN LANE NEW YORK

Half a Century

Jes Iingvert Hansen, of Denver, Master watchmaker for half a century celebrates this month his 50th year at the bench. Born January 27th, 1871, in Schleswigthen, Denmark, and came to America in 1878, settled and grew up in Racine, Wis. The Rocky Mountain region as well as all America, considers Jes an outstanding craftsman, his ability and fame is heard and known by all.

JES I. HANSEN

Mr. Hansen started his career in 1889 under John Elkins, formerly an apprentice of the famous Willards of Boston, then the best watchmakers in America. But Elkins inherited all their skill and passed it on to Jes Hansen who still has it. But Jes has taught more than one beginner, so the trade and art will not die. Mr. Hansen contributes his entire success to John Elkins and feels he can never pay his debt of gratitude to his first master. We wish Jes many more happy and active years at the bench.

The Horological Society of New York

Held its regular meeting October 3rd, which brought together one of the largest assemblages that has been held for some time.

Mr. Andrew Park, their president, announced the society shall hold its annual banquet at Hotel St. Moritz, Sunday evening, February 11, 1940. Tiickets will be $6.00 per couple.

President Park welcomed back, to the fold, ex-president, Ben Mellenhoff, who recently returned from a South American cruise; and also an old member, Mr. Christiensen, from Florida.

The major part of the evening was devoted to Mr. Scheick, Optical Engineer of Bausch & Lomb Optical Company. His topic, "The Care of the Watchmakers' Eyes," was a most beneficial and entertaining lecture, and was well illustrated.

Denver Guild

The Denver Guild held its second fall meeting Friday, October 13th, elected an entire new set of officers and outlined its work and play.

Mr. D. Brown, elected as President; E. Selby, Secretary-Treasurer; A Board of Directors was added to the officer personnel.

During the technical meeting it was the Guild's good fortune to have with them Mr. Charles Purdum, Dean of Timing machine demonstrators, representing the Watch Master.

Denver Guild Members Finding Out Where Their Errors Were. The Boys Were Quite Busy Between the Machine and the Work Bench, Charlie Sure Kept Them Busy.

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Watch Material and Jewelers' Supplies
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"DO IT RIGHT"
the first time with

Genuine
HAMILTON WATCH MATERIALS

A FEW CENTS SAVING can't outweigh the greater loss that results from customer dissatisfaction with a sloppy repair job. The cut-rate watchmaker, with his inferior materials, has to depend on a steady stream of "one-time" customers. The watchmaker who uses genuine Hamilton materials for Hamilton Watches can be confident of repeat orders from old customers as well as new business from watch owners who have learned of his craftsmanship.

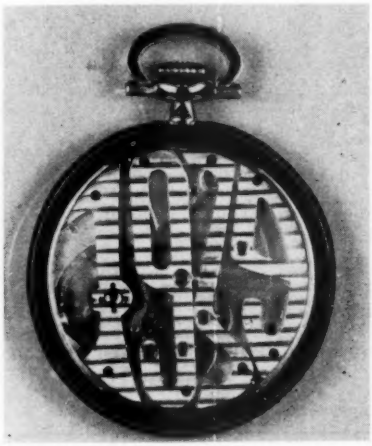
It stands to reason that no one can be more vitally interested in the performance of Hamilton Watches than the makers. It stands to reason that no one is in a better position than the makers to furnish materials for the repair of Hamilton Watches. "Do it right" the first time—use genuine Hamilton materials and preserve that in-built stability and traditional accuracy which have distinguished Hamilton Watches since 1893.

Your Hamilton Material Wholesaler is equipped to fill your requirements promptly.

HAMILTON WATCH CO., LANCASTER, PA.

Watch By B. Mellenhoff

Benjamain Mellenhoff, Head Horologist of Marcus & Co., N. Y., designed and construed this unusual watch dedicating it to the 150th anniversary of the inauguration of George Washington, as President of the United States.



Watch Constructed by B. Mellenhoff.

The dial carries out the New York World's Fair symbols. The movement plates, 1939. Mr. Mellenhoff devoted considerable time to the construction of this unusually designed watch before commencing the work.

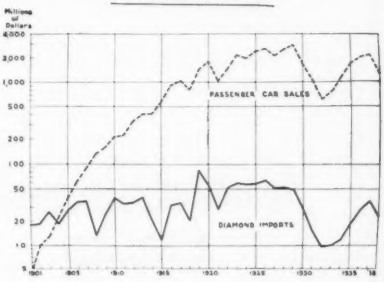
While visiting with Ben early this year, I had the pleasure to see the watch and examine it closely. A photo certainly doesn't do it justice. You will note the winding parts are all under the dial. The train used, is that of a 12-size Hamilton.

New York Watchmakers Picnic

Under the sponsorship of the Syracuse Horological Guild, the Mohawk Valley Watchmakers Guild, the Albany Guild, and the Student Guild, a picnic was held at Gilberd Lake, State Park, September 7th, with a goodly attendance and great enthusiasm—despite the unusual cool and rainy weather which threatened. There was an attendance of over sixty, and everyone enjoyed the occasion.

Next year it is hoped, through careful planning well in advance, that they shall have a picnic turn-out of between two and three hundred.

Upper Photo, Reading Left to Right: Mr. Bannigan, Mr. John De Vogel, Mr. Harrington, Albany; Mr. Schlehr and Mr. Harrington of Syracuse.
Second Photo, the Cooks for the Day, Left to Right: Mr. Steer, Mr. Harrington, Mr. Jonson and Mr. Steers' Boys.
Lower Photo: Members of New York Student Watchmakers Guild.



Too Many Luxuries

This chart shows how, after 1905, automobiles began to spurt ahead of diamond imports in the race for the consumer's dollar in the luxury field. This is one of the forms of "luxury" articles that have compelled a stronger drive to popularize "the king of gems."

H. I. A.

At a meeting of the Examining Board of the Horological Institute of America held in Washington, D. C., on September 30, 1939, certificates were granted to the following watchmakers:

Name	Address	Employed by
CERTIFIED WATCHMAKERS		
Lawrence H. Bates,	Mobile, Alabama	Ferd. Zundel
Alton B. East,	Richmond, Indiana	Addison Harris
Arnold E. Layher,	Sebewaing, Michigan	Self
Kenneth P. Persing,	Port Huron, Michigan	S. E. Masher
Edward Puchaty,	Lancaster, Pennsylvania	Ezra E. Bowman's Sons
C. B. Young, Jr.,	Calvert, Alabama	Self
JUNIOR WATCHMAKERS		
Donald M. Andrews,	Santa Barbara, California	
James Robert Baxter,	Peoria, Illinois	Student at Bradley Institute
Samuel Bernard,	Woodside, New York	N. Y. C. Board of Education
O. G. Burdine,	Peoria, Illinois	Student at Bradley Institute
Byron Arthur Colvin,	Elgin, Illinois	Student at Elgin College
Miss Evelyn E. Gould,	Peoria, Illinois	Student at Bradley Institute
Alexander G. Goeringer,	Clinton, Oklahoma	Wren Jewelry Co.
Carl D. James,	Peoria, Illinois	Student at Bradley Institute
John E. Klohr,	Peoria, Illinois	Student at Bradley Institute
William Carl Longenbaugh,	Peoria, Illinois	Student at Bradley Institute
Kendrick A. McMullin,	Peoria, Illinois	Student at Bradley Institute
Israel M. Schacher,	Brooklyn, New York	
Rene Arthur Suplit,	Waltham, Massachusetts	Waltham Watch Co.
Roy P. Tuel,	Culpeper, Virginia	
Frank V. B. Varalle,	Elgin, Illinois	Student at Elgin College

R. E. GOULD, Secretary.

Cover Page Photo

This clock, over the store of Henry Birks & Sons, Ltd., is in the city of Hamilton, Canada. It requires no attention, and does not vary more than two or three seconds a year. It is electrically controlled from the master clock, the hands moving every half minute. At the base may be seen two of the four mediaeval knights which joust with each other every quarter.

Early American Clock Dials

The duplication, repair or refinishing our specialty Estimates cheerfully given.

J. E. COLEMAN

50 Arcade Bldg. Nashville, Tenn.

THE SPECIAL HANDLE WITH 3 SMALL CHUCKS

met with the unanimous approval of all practical watchmakers

It will be sold with three chucks with holes 1, 1,5 and 2,5mm. It will be used in the friction tool SEITZ.

Drills, cutters, chamferers, reamers, etc., may now be used with the friction tool SEITZ. Chucks with all holes may be obtained.

SEITZ Friction Jeweling Outfits—

the best equipped!

TO WHOLESALE ONLY

Bergeon & Company LE LOCLE, SWITZERLAND

Ohio Watchmakers Association

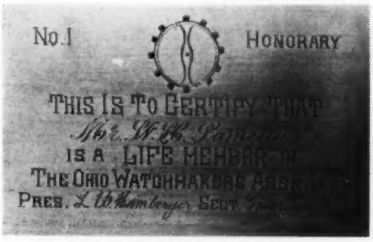
State Meeting of the Ohio Watchmakers Association held in Columbus, Ohio, on the 24th of September, 1939, in the Deshler Wallick Hotel.

This meeting was called to do honor to the Profession's Grand Old Man, Mr. William H. Samelius, Chairman of the Technical Board of the U. H. A. of A. At the 1939 convention of the Ohio Watchmakers Association, Mr. Samelius was elected as an Honorary Life Member of the Ohio Watchmakers Association, to signify this honor, a solid gold membership card was made up of gold donated by the members of the state of Ohio, and presented to Mr. Samelius at this meeting. There were 150 members present at the meeting.

Mr. Henry Von Unruh, Regional Vice-Predident of the A. N. R. J. A., was presiding, he introduced the speaker of the day, Mr. Maddux, Executive Vice-President of the Ohio Chamber of Commerce, whose topic was "The War and American Business." Frank Foegler spoke on legislation, and State President, Heimberger made the presentation of card to Mr. Samelius with a talk on GUILDS of THE PAST, PRESENT, and FUTURE.

Mr. Samelius answered in his usual modest way, but after a little coaxing he gave an elaborate talk on the effect of Licensing the watchmakers and finished amid a tremendous applause.

Dinner in Honor of William H. Samelius, of Ohio Association.



Gold Membership Card Presented by State Association.

Arkansas City Guild Formed

Kansas announces another guild headed by R. R. Smith, President; G. E. Newfield, Secretary-Treasurer.

The meeting was held at Purity Cafe in Arkansas City. Wifes of all local men were present.

Messrs. Loomis, Doell, Fray and D. A. Wells from Hutchinson called and formed the guild. State Secretary Wells announced engagements for guild formation have been arranged in Topeka, Anthony, Dodge City, Independence, Iola, Chanute, Emporia and Pratt.

Carl Hurst, State Secretary of Oklahoma, and F. Wells, Treasurer, Tulsa, Oklahoma, were seen at the Kansas Convention—evidently looking for ideas or members.

Left to Right: L. Branson, National Trustee; H. D. Howard, State Treasurer; P. E. Loomis, State President; Z. J. Hamm, Convention Chairman; Wm. Wertz, Attorney; Wm. Brasfield, State Technical Director; D. A. Wells, State Secretary.

Kansas State Convention Dinner.

Kansas State Horological Association

Held their first state convention, Sunday, October 22nd, at Wichita, which proved to be unusually successful and interesting, with a total attendance of 120.

The day was filled with activity, good speakers, and ended with a banquet.

Some guest speakers were: R. C. Hoppe, Research Engineer, of Elgin Watch Company; Sid Prague, Sales Manager of C. & E. Marshall Company; Dr. Ernest F. Philblad, President of Bethany College; and William Wertz, well known attorney of Wichita.

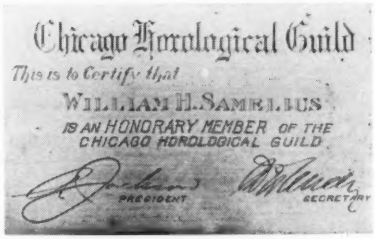
Election of officers was not on the program. Education, legislation, and expansion programs were the work of the day.

Kansas surges forward in this united movement.

State Secretary Wells of Kansas states that Kansas is going places and Oklahoma just won't be able to see them.

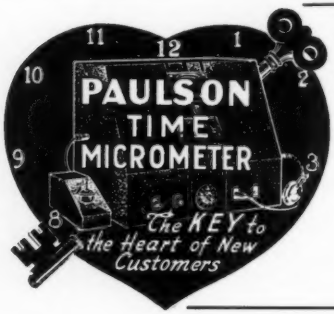
SUCCESS FAILS

Better try to do something
And fail in the deed
Than try to do nothing
And always succeed.



Silver Membership Card Presented to W. H. Samelius.

Chicago Guild Members at Elgin Factory.



ONLY $250.00

AND THOUSANDS ARE USING THEM

The Paulson Time Micrometer, now in its fifth year of successful performance in thousands of retail jewelry stores, not only quickly locates the trouble in the watch, speeds up your repairs at least 25% but of greater importance, it creates more business for you, builds prestige and dependability as hundreds of laudatory letters will testify. **You take no chances, satisfaction guaranteed.**

HENRY PAULSON & CO.

EXCLUSIVE DISTRIBUTOR **CHICAGO**

DO YOU KNOW?

Directed by
W. H. SAMELIUS, Chairman
Science of Horology and Technical Advisory Board

The watchmaker has occasion to employ a few acids and salts: Nitric acid, either in concentrated or dilute form, will dissolve iron, steel, copper, lead, silver, zinc, brass, nickel, mercury, German silver. It does not dissolve tin but reduces it to a white powder known as metastannic acid. If an attempt is made to dissolve bronze, which contains tin, this metal is deposited and the copper and zinc passes into the solution. Sulphuric acid will dissolve iron, steel, copper, tin, silver, zinc, brass, nickel, mercury, German silver. Hydrochloric acid will dissolve iron, steel, copper (slowly), tin (slowly), zinc, brass, nickel, German silver (slowly). Aqua regia, a mixture of about 2 parts hydrochloric and 1 part nitric acid, will dissolve all the above named metals and in addition, gold and platinum, although separately neither acid will attack these metals. Hydrofluoric acid will attack and dissolve all metals except platinum, lead and silver with violent effervescence. It is also used for etching on glass or enamel. It is usually preserved in gutta-percha bottles and is of such dangerous nature that no use should be made of it without good knowledge of its properties.

Acids are rarely employed in their pure state, they are diluted with water.

Commercial nitric acid has a density of about 1-4 (38° on Baumes Hydrometer). If this density is reduced the addition of water to 1-16 (20° Baume) we obtain the acid most commonly employed.

For cleaning metallic surfaces prior to soldering, etc., for giving grained surface to brass and for whitening blue steel, special proportions are found most convenient which the reader can best determine by experimentation, remembering the action of the acid should be neither too quick or too slow.

Borax serves as a flux in soldering gold, silver, platinum, etc. Also for the same purpose in brazing. It is met with in crystals or powder.

Sal-ammoniac (also called chloride of ammonium) is used in soldering tin, either in powder or made into a paste with sweet oil or water, or mixed with resin.

Alum dissolved in water may occasionally be used in place of nitric acid for cleaning surfaces that have been soldered; it attacks iron and zinc more energetically than copper, zinc or brass. This fact is often taken advantage of for removing broken screws, etc., from brass plates. All other steel parts are removed and the plate placed in a solution of alum, when the steel screw is gradually eaten away by being converted into rust.

In 100 parts of cold water only 9 parts of alum will dissolve but, if the water is boiled, it will take up 75 parts. Its action will be proportionally more energetic when boiling.

What is gold filled and rolled plate? For either product, 10K or higher gold must be used to conform to U. S. Commercial Standard No. CS47-34 (except watch cases made to special standards). In quantities of 1/20th or more, it is called gold filled. Lower than 1/20th is called rolled gold plate.

BOOK WANTED

Leitfaden Fuer Die Uhrmacherlehre

By H. Siefert

Please State Price

GEO. CORDES, 3868 Monroe St., Toledo, Ohio

WALTHAM HONORED

Three Merit Awards for "outstanding achievement in research, craftsmanship and consumer satisfaction" have been made to the Waltham Watch Company by the Associated Industries of Massachusetts.

Official recognition of merit was bestowed upon the Waltham Premier "ELSON," thinnest and smallest women's round watch ever made in America; "SAGAMORE," new tear drop design that can be worn three ways; and "PATTEN," thinnest men's wrist watch of its size ever made in this country.

The tiny "ELSON," retailing for $34.75, has 17 jewels with a 10K gold-filled case. The versatile "SAGAMORE," similarly jeweled and cased, sells for $39.75, and the thin, disitnctive "PATTEN," 12 jewels, 14 K glod case, lists at $55.00.

Tennessee Guild No. 1

The 70th meeting of Guild No. 1 of the Tennessee Watchmakers and Jewelers Association was held October 3rd, at the Noel Hotel.

The meeting opened with a large attendance and plans were made for the annual picnic to be held at Shelby Park, October 11th. It was also decided that at the next regular monthly meeting a Dutch Supper will be served.

Please address all communications to Dea Osborne, 315 Fifth Ave. N., Nashville, Tenn.

THE TENNESSEE WATCHMAKERS AND JEWELERS ASSOCIATION

Held its Annual State Board of Directors' meeting, Sunday, October 8th, at the Noel Hotel in Nashville. President T. O. Pearson presiding. Members present were: President T. O. Pearson of Memphis; Vice Presidents John B. Varallo of Nashville, J. D. McQuirter of Memphis, Geo. R. Harding of Chattanooga; Sec.-Treas. Ralph F. Langreck of Nashville; J. E. Coleman of Nashville, S. G. Cochron of Nashville, R. L. Parcell of Chattanooga, L. R. Ralston of Chattanooga, Chas. E. Maskall of Knoxville, A. D. Jenkins of Knoxville, B. A. Ruwe of Knoxville, Dr. John McQuirter of Memphis. Visitors were Fred Gates of Chattanooga, L. B. Parker of Clinton, C. E. Bowman of LaFollette, B. H. Elliott of Knoxville, C. E. Elliott of Knoxville, Carl B. Peterson of Nashville and W. A. Parker of Nashville.

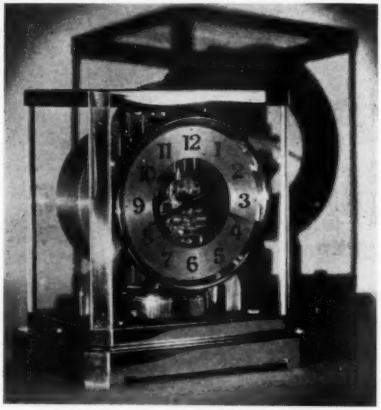
The date of the next convention was set for May 5th-6th at Knoxville, Chas. E. Maskall being appointed convention chairman. The pending State Licensing Law was up for quite a bit of discussion as well as proposed changes in the State By-laws. After the business session luncheon was served with the wives as our guests. R. LANGRECK, Sec.

CLOCK THAT LIVES ON AIR

Longines-Wittnauer Watch Company featuring Atmos, the Perpetual Motion Clock.

The manufacturers of the Atmos clock, "the clock that lives on air," have turned over the Atmos clock to the Longines-Wittnauer Watch Co. who will hereafter import, distribute and service this perpetual motion mechanism.

The Atmos clock is one of the wonders of this modern age. This unique clock requires no winding either by hand or electricity. It works by itself indefinitely without human intervention.

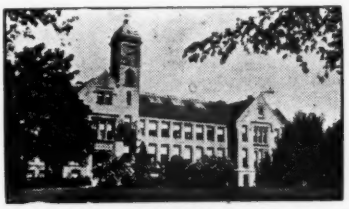


The Atmos clock operates entirely from the variation of temperature and barometric pressure. A change of 1 degree centigrade gives more than 120 hours driving energy to the motor. This energy is communicated to the movement which requires 1000 times less power than an ordinary movement. The slow movement of the balance wheel avoids wear and tear and enables it to function without oil. The elimination of oiling is responsible for a precision hitherto unknown for a clock of series manufacture. It should take 150 years for the Atmos clock to show the same amount of wear that an ordinary clock would show in a year.

The Atmos clock is the practical and commercial realization of the dream of watchmakers of all times—a perpetual motion clock. Its life-long duration makes it economical to own.

Inquiries regarding the Atmos clock should be directed to the Longines-Wittnauer Watch Co., 580 Fifth Ave., New York.

"The Pathway to Success"



WATCHWORK
JEWELRY
STONE SETTING
ENGRAVING

Bradley Polytechnic Institute
School of Horology

DEPT. B PEORIA, ILL.

Established 1886

MAJOR BOWES SALUTES ELGIN

On occasion of a recent broadcast of the Chrysler Amateur Hour dedicated to Elgin, Illinois, genial Major Edward Bowes accepted an Elgin watch presented by Myron Lehmann, mayor of Elgin.

The presentation was made on behalf of the mayor by William H. Fowlie, manager of the New York office of the Elgin National Watch Company, October 5th, on the stage of the Columbia Radio

After Major Edward Bowes saluted Elgin, Illinois, over his Original Amateur Hour, the Elgin National Watch Company presented him with a beautiful watch as a souvenir. W. H. Fowlie, Elgin's New York manager, here presents the Major with the Lord Elgin after 27 million listeners had heard about the beauties of the Illinois city.

Theater in New York City. The model was a rose gold Lord Elgin. At the close of the broadcast, Mr. Fowlie made the presentation, giving the following message from Mayor Lehmann:

"Elgin is as proud of her manufactured products as she is of her homes and citizens. Please accept this token of the city's appreciation of the honor done her tonight. We are deeply grateful for everything you have done and said and our hope is that this fine instrument will help to time many, many hundreds of future amateur hours."

Expressing his thanks in his usual genial manner, Major Bowes said, "After we had set the date for the Elgin broadcast, I learned that by a happy coincidence this year marks the 75th anniversary of the founding of the Elgin National Watch Company. I think this is an occasion of more than ordinary significance. The company was founded in 1864, in the midst of our greatest war, proof that in the darkest days men can find courage to advance the arts of peace.

"I would say that watchmaking is one of the finest arts of peace. The craftsmanship required attracts to a community the highest type of citizens—the men and women who have pride in the skill and precision of their work, who build homes solidly and advance the building of the city itself no less."

Referring to the Elgin National Watch Company as "one of our most important pioneers," Major Bowes saluted it further as "one of the very first to bring manufacturing to the agricultural mid-west, combatting a conviction that factories could only be successful near the Atlantic. It was also a pioneer in applying production methods to bring within the means of almost everyone a highly useful device that had formerly been a rich man's luxury."

AT LAST—A SENSABLY PRICED METRIC JEWEL GAUGE

There has always existed a need for a set of gauges with accurate metric pivots to quickly determine the hole sizes of jewels. For example, a watchmaker wishes to replace a cracked jewel with a friction type jewel. In order to prevent a needless waste of time a gauge should be used to determine the hole size of the old jewel before it is removed. Many workmen also have a stock of mixed jewels on hand. With a set of gauges, sorting them out or selecting one to fit a job is an easy matter.

In spite of the obvious advantages and utility of such gauges, very few watchmakers own a set for the reason of the price of those available. Swartchild & Co. have eliminated this obstacle from the path of the progressive and efficient workman. They offer a set of fine Swiss jewel gauges with finished pivots accurate to within ½ of 100th of a millimeter at less price than others.

SPECIAL NOTICE TO U. H. A. OF A. MEMBERS

Fellow Members: Your National Association is seeking suggestions from you and our friends in the industry as to how to liquidate our national obligations.

Increased activities and services have kept us from reducing the standing obligations.

Your individual or guild recommendations will be appreciated.

HAMILTON WATCH ORDERS INDICATE INCREASED PROSPERITY

Immediate Acceptance of New Models Greatest Prod for Sales Rise

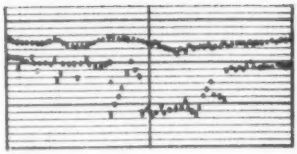
Reporting better-than-seasonal increases in orders, the Hamilton Watch Company attributes a recent rise in new business to increased general prosperity and the immediate popularity of new models introduced early this Fall.

According to the announcement, this sales trend points toward a considerable expansion of consumer spending power for the approaching holiday season. In addition, it will account for a natural advance in sales of Hamilton watches retailing from $50 upward.

The new Hamilton numbers which achieved overnight acceptance both from the trade and the public were designed to climax Hamilton's leadership in the American watch field, with a line sufficient to meet all of today's market demands.

Included among the new "winners" are the additions to the "pre-proven" 911 grade for women, now available in gold-filled. Outstanding in the strap watch group are the new 980 Wilshire, Ross and Winthrop, and the 982 Brock.

The Watch Master Watch-Rate Recorder produces in 30 seconds a printed chart showing the 24-hour gain or loss in the rate of any watch, also the cause of any irregularity.



To reduce watch repair costs

by saving time, money and labor through reducing to minutes the work which previously required days.

To increase patronage

by speedy service with chart-proven accuracy that holds old customers and attracts new ones.

To protect investment

by testing in 30 seconds, each new watch received for stock.

Watch Master

American Time Products, Inc.

580 Fifth Avenue **New York, N. Y.**

Distributor Western Electric Watch-Rate Recorders